an adder unit for adding the data input from the bit compensation unit and outputting the result.

9. The Fast Fourier Transforming apparatus of Claim 8, wherein the bit compensation unit outputs the data input from the division and multiplication calculation unit intact if the remainder **R** is not **1**, where the remainder is calculated from the division of the difference value between the scale count value and the predetermined number of stages by **2**.

10. The Fast Fourier Transforming apparatus of Claim 8, wherein the bit compensation unit multiplies the data input from the division and multiplication calculation unit by **1/2, 1/8, 1/16, 1/64,** respectively, if the remainder **R** is **1** and the selection data is for the division operation, thereby outputting each of the result value to the adder unit.

11. The Fast Fourier Transforming apparatus of Claim 8, wherein the bit compensation unit multiplies the data input from the division and multiplication calculation unit by **1, 1/4, 1/8, 1/32**, respectively, if the remainder **R** is **1** and the selection data is for the multiplication operation, thereby outputting each of the result value to the adder unit.

12. The Fast Fourier Transforming apparatus of Claim 8, wherein the adder unit adds each of the 4 result values from the bit compensation unit to compensate for the bit of the input signal.

13. A Fast Fourier Transforming method for compensating an OFDM output bit signal, comprising:

a step of input buffering for storing and outputting a received OFDM bit signal,

a step of first operation for dividing the received signal by a scale factor and outputting the result,

a step of butterfly operation for butterfly operating on the result at each of the stages according to a radix algorithm and outputting the butterfly operated signal,

a step of scale detection for calculating the scale factor which is a division factor and is used for controlling the bit value of the butterfly operated signal to fall within the predetermined bit limit of the OFDM signal input at the step of the input buffering,

a step of scale counting for cumulatively counting a count figure corresponding to the scale factor of the input bit signal and outputting the cumulative scale count value,

a step of feed back for repeating the step of input buffering through the step of scale count until a predetermined number of stages is reached, and

a step of compensation for controlling the butterfly operated value, which is calculated at the final stage of a predetermined number of stages, according to the scale factor and the scale count value.

14. The Fast Fourier Transforming method of Claim 13, further comprising a step of dividing a bit value of a later input signal by the scale factor and outputting the divided result, thereby performing the butterfly operation in a manner of considering the scale factor.

15. The Fast Fourier Transforming method of Claim 13, further comprising a step of output buffering for storing a signal resulting from the step of butterfly operation at each of the stages; and

a step of input/output control for controlling the signal stored at the step of output buffering to feed back to the step of input buffering until the butterfly operation is conducted as many times as the predetermined number of stages and passing the butterfly operated signal at the final stage of predetermined number of stages to the step of compensation.

16. The Fast Fourier Transforming method of Claim 15, wherein, if a radix-2 algorithm is applied to the step of butterfly operation, the step of input/output control controls the OFDM bit signal to be passed to the step of input buffering by a unit of **8** bits and controls a predetermined bit limit to be set to **12** bits at the step of scale detection.

17. The Fast Fourier Transforming method of Claim 16, wherein the scale factor is set to **4** if an absolute value of the butterfly operated bit signal is greater than **1024**, to **2** if **412** and to **1** if **256**, so that the butterfly operated bit value can be maintained at **8** bits.

18. The Fast Fourier Transforming method of claim 17, wherein at the step of scale counting, the number **4** is applied as the count factor if the scale factor is **4**, **2** if **2** and **1** if θ for cumulative counting the count figure corresponding to the scale factor.

19. The Fast Fourier Transforming method of claim 13, wherein at the step of compensation, the bit value of the input signal of the step of input